

SEQUENCE LISTING

<110> Whitsett, Jeffrey
Klaus H. Kaestner

<120> Diagnosis, prognosis and treatment of
pulmonary diseases

<130> 10872/517745

<150> 60/519,453

<151> 2004-11-12

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<213> homo sapiens

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aaaagagggt gggggtgggg ggtgattgct ggtcgttgt tgtggctgt aaattttaaa 180
ctgccatgca ctgcgcttcc agt atg ctg gga gcg gtg aag atg gaa ggg cac 233
Met Leu Gly Ala Val Lys Met Glu Gly His
1 5 10

gag ccg tcc gac tgg agc agc tac tat gca gag ccc gag ggc tac tcc 281
Glu Pro Ser Asp Trp Ser Ser Tyr Tyr Ala Glu Pro Glu Gly Tyr Ser
15 20 25

tcc gtg agc aac atg aac gcc ggc ctg ggg atg aac ggc atg aac acg 329
Ser Val Ser Asn Met Asn Ala Gly Leu Gly Met Asn Gly Met Asn Thr
30 35 40

tac atg agc atg tcg gcg gcc gcc atg ggc agc ggc tcg ggc aac atg 377
Tyr Met Ser Met Ser Ala Ala Ala Met Gly Ser Gly Ser Gly Asn Met
45 50 55

agc gcg ggc tcc atg aac atg tcg tcg tac gtg ggc gct ggc atg agc 425
Ser Ala Gly Ser Met Asn Met Ser Ser Tyr Val Gly Ala Gly Met Ser

60 65 70

ccg tcc ctg gcg ggg atg tcc ccc ggc gcg ggc gcc atg gcg ggc atg 473
Pro Ser Leu Ala Gly Met Ser Pro Gly Ala Gly Ala Met Ala Gly Met
75 80 85 90

ggc ggc tgc gcc ggg gcg gcc ggc gtg gcg ggc atg ggg ccg cac ttg 521
Gly Gly Ser Ala Gly Ala Ala Gly Val Ala Gly Met Gly Pro His Leu
95 100 105

agt ccc agc ctg agc ccg ctc ggg ggg cag gcg gcc ggg gcc atg ggc 569
Ser Pro Ser Leu Ser Pro Leu Gly Gly Gln Ala Ala Gly Ala Met Gly
110 115 120

ggc ctg gcc ccc tac gcc aac atg aac tcc atg agc ccc atg tac ggg 617
Gly Leu Ala Pro Tyr Ala Asn Met Asn Ser Met Ser Pro Met Tyr Gly
125 130 135

cag gcg ggc ctg agc cgc gcc cgc gac ccc aag acc tac agg cgc agc 665
Gln Ala Gly Leu Ser Arg Ala Arg Asp Pro Lys Thr Tyr Arg Arg Ser
140 145 150

tac acg cac gca aag ccg ccc tac tgc tac atc tgc ctc atc acc atg 713
Tyr Thr His Ala Lys Pro Pro Tyr Ser Tyr Ile Ser Leu Ile Thr Met
155 160 165 170

gcc atc cag cag agc ccc aac aag atg ctg acg ctg agc gag atc tac 761
Ala Ile Gln Gln Ser Pro Asn Lys Met Leu Thr Leu Ser Glu Ile Tyr
175 180 185

cag tgg atc atg gac ctc ttc ccc ttc tac cgg cag aac cag cag cgc 809
Gln Trp Ile Met Asp Leu Phe Pro Phe Tyr Arg Gln Asn Gln Gln Arg
190 195 200

tgg cag aac tcc atc cgc cac tgc ctc tcc ttc aac gac tgt ttc ctg 857
Trp Gln Asn Ser Ile Arg His Ser Leu Ser Phe Asn Asp Cys Phe Leu
205 210 215

aag gtg ccc cgc tgc ccc gac aag ccc ggc aag ggc tcc ttc tgg acc 905
Lys Val Pro Arg Ser Pro Asp Lys Pro Gly Lys Gly Ser Phe Trp Thr
220 225 230

ctg cac cct gac tgc ggc aac atg ttc gag aac ggc tgc tac ctg cgc 953
Leu His Pro Asp Ser Gly Asn Met Phe Glu Asn Gly Cys Tyr Leu Arg
235 240 245 250

cgc cag aag cgc ttc aag tgc gag aag cag ctg gcg ctg aag gag gcc 1001
Arg Gln Lys Arg Phe Lys Cys Glu Lys Gln Leu Ala Leu Lys Glu Ala
255 260 265

gca ggc gcc gcc ggc agc ggc aag aag gcg gcc gcc gga gcc cag gcc 1049
Ala Gly Ala Ala Gly Ser Gly Lys Lys Ala Ala Ala Gly Ala Gln Ala
270 275 280

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Ser Gln Ala Gln Leu Gly Glu Ala Ala Gly Pro Ala Ser Glu Thr Pro
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gcg ggc acc gag tcg cct cac tcg agc gcc tcc ccg tgc cag gag cac 1145
Ala Gly Thr Glu Ser Pro His Ser Ser Ala Ser Pro Cys Gln Glu His
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Lys Arg Gly Gly Leu Gly Glu Leu Lys Gly Thr Pro Ala Ala Ala Leu
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Ser Pro Pro Glu Pro Ala Pro Ser Pro Gly Gln Gln Gln Gln Ala Ala
335 340 345

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Ala His Leu Leu Gly Pro Pro His His Pro Gly Leu Pro Pro Glu Ala
350 355 360

cac ctg aag ccg gaa cac cac tac gcc ttc aac cac ccg ttc tcc atc 1337
His Leu Lys Pro Glu His His Tyr Ala Phe Asn His Pro Phe Ser Ile
365 370 375

aac aac ctc atg tcc tcg gag cag cag cac cac cac agc cac cac cac 1385
Asn Asn Leu Met Ser Ser Glu Gln Gln His His His Ser His His His
380 385 390

cac caa ccc cac aaa atg gac ctc aag gcc tac gaa cag gtg atg cac 1433
His Gln Pro His Lys Met Asp Ser Leu Lys Ala Tyr Glu Gln Val Met His
395 400 405 410

tac ccc ggc tac ggt tcc ccc atg cct ggc agc ttg gcc atg ggc ccg 1481
Tyr Pro Gly Tyr Gly Ser Pro Met Pro Gly Ser Leu Ala Met Gly Pro
415 420 425

gtc acg aac aaa acg ggc ctg gac gcc tcg ccc ctg gcc gca gat acc 1529
Val Thr Asn Lys Thr Gly Leu Asp Ala Ser Pro Leu Ala Ala Asp Thr
430 435 440

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445 450 455

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35 40 45
Ala Ala Met Gly Ser Gly Ser Gly Asn Met Ser Ala Gly Ser Met Asn
50 55 60
Met Ser Ser Tyr Val Gly Ala Gly Met Ser Pro Ser Leu Ala Gly Met
65 70 75 80
Ser Pro Gly Ala Gly Ala Met Ala Gly Met Gly Gly Ser Ala Gly Ala
85 90 95
Ala Gly Val Ala Gly Met Gly Pro His Leu Ser Pro Ser Leu Ser Pro
100 105 110
Leu Gly Gly Gln Ala Ala Gly Ala Met Gly Gly Leu Ala Pro Tyr Ala
115 120 125
Asn Met Asn Ser Met Ser Pro Met Tyr Gly Gln Ala Gly Leu Ser Arg
130 135 140
Ala Arg Asp Pro Lys Thr Tyr Arg Arg Ser Tyr Thr His Ala Lys Pro
145 150 155 160
Pro Tyr Ser Tyr Ile Ser Leu Ile Thr Met Ala Ile Gln Gln Ser Pro
165 170 175
Asn Lys Met Leu Thr Leu Ser Glu Ile Tyr Gln Trp Ile Met Asp Leu
180 185 190
Phe Pro Phe Tyr Arg Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg
195 200 205
His Ser Leu Ser Phe Asn Asp Cys Phe Leu Lys Val Pro Arg Ser Pro
210 215 220
Asp Lys Pro Gly Lys Gly Ser Phe Trp Thr Leu His Pro Asp Ser Gly
225 230 235 240
Asn Met Phe Glu Asn Gly Cys Tyr Leu Arg Arg Gln Lys Arg Phe Lys

245 250 255
 Cys Glu Lys Gln Leu Ala Leu Lys Glu Ala Ala Gly Ala Ala Gly Ser
 260 265 270
 Gly Lys Lys Ala Ala Ala Gly Ala Gln Ala Ser Gln Ala Gln Leu Gly
 275 280 285
 Glu Ala Ala Gly Pro Ala Ser Glu Thr Pro Ala Gly Thr Glu Ser Pro
 290 295 300
 His Ser Ser Ala Ser Pro Cys Gln Glu His Lys Arg Gly Gly Leu Gly
 305 310 315 320
 Glu Leu Lys Gly Thr Pro Ala Ala Ala Leu Ser Pro Pro Glu Pro Ala
 325 330 335
 Pro Ser Pro Gly Gln Gln Gln Gln Ala Ala Ala His Leu Leu Gly Pro
 340 345 350
 Pro His His Pro Gly Leu Pro Pro Glu Ala His Leu Lys Pro Glu His
 355 360 365
 His Tyr Ala Phe Asn His Pro Phe Ser Ile Asn Asn Leu Met Ser Ser
 370 375 380
 Glu Gln Gln His His His Ser His His His Gln Pro His Lys Met
 385 390 395 400
 Asp Leu Lys Ala Tyr Glu Gln Val Met His Tyr Pro Gly Tyr Gly Ser
 405 410 415
 Pro Met Pro Gly Ser Leu Ala Met Gly Pro Val Thr Asn Lys Thr Gly
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cccgaggccg ttccgggtct gaactgtaac agggaggggc ctgcaggag cagcagcggg 180
cgagttaaag t atg ctg gga gcg gtg aag atg gaa ggg cac gag ccg tcc 230
Met Leu Gly Ala Val Lys Met Glu Gly His Glu Pro Ser
1 5 10

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Asp Trp Ser Ser Tyr Tyr Ala Glu Pro Glu Gly Tyr Ser Ser Val Ser
15 20 25

aac atg aac gcc ggc ctg ggg atg aac ggc atg aac acg tac atg agc 326
Asn Met Asn Ala Gly Leu Gly Met Asn Gly Met Asn Thr Tyr Met Ser
30 35 40 45

atg tcg gcg gcc gcc atg ggc agc ggc tcg ggc aac atg agc gcg ggc 374
Met Ser Ala Ala Ala Met Gly Ser Gly Ser Gly Asn Met Ser Ala Gly
50 55 60

tcc atg aac atg tcg tcg tac gtg ggc gct ggc atg agc ccg tcc ctg 422
Ser Met Asn Met Ser Ser Tyr Val Gly Ala Gly Met Ser Pro Ser Leu
65 70 75

gcg ggg atg tcc ccc ggc gcg ggc gcc atg gcg ggc atg ggc ggc tcg 470
Ala Gly Met Ser Pro Gly Ala Gly Ala Met Ala Gly Met Gly Gly Ser
80 85 90

gcc ggg gcg gcc ggc gtg gcg ggc atg ggg ccg cac ttg agt ccc agc 518
Ala Gly Ala Ala Gly Val Ala Gly Met Gly Pro His Leu Ser Pro Ser
95 100 105

ctg agc ccg ctc ggg ggg cag gcg gcc ggg gcc atg ggc ggc ctg gcc 566
Leu Ser Pro Leu Gly Gly Gln Ala Ala Gly Ala Met Gly Gly Leu Ala
110 115 120 125

ccc tac gcc aac atg aac tcc atg agc ccc atg tac ggg cag gcg ggc 614
Pro Tyr Ala Asn Met Asn Ser Met Ser Pro Met Tyr Gly Gln Ala Gly
130 135 140

ctg agc cgc gcc cgc gac ccc aag acc tac agg cgc agc tac acg cac 662
Leu Ser Arg Ala Arg Asp Pro Lys Thr Tyr Arg Arg Ser Tyr Thr His
145 150 155

gca aag ccg ccc tac tcg tac atc tcg ctc atc acc atg gcc atc cag 710
Ala Lys Pro Pro Tyr Ser Tyr Ile Ser Leu Ile Thr Met Ala Ile Gln
160 165 170

cag agc ccc aac aag atg ctg acg ctg agc gag atc tac cag tgg atc 758
Gln Ser Pro Asn Lys Met Leu Thr Leu Ser Glu Ile Tyr Gln Trp Ile
175 180 185

atg gac ctc ttc ccc ttc tac cgg cag aac cag cag cgc tgg cag aac 806
Met Asp Leu Phe Pro Phe Tyr Arg Gln Asn Gln Gln Arg Trp Gln Asn
190 195 200 205

tcc atc cgc cac tcg ctc tcc ttc aac gac tgt ttc ctg aag gtg ccc 854
Ser Ile Arg His Ser Leu Ser Phe Asn Asp Cys Phe Leu Lys Val Pro
210 215 220

cgc tcg ccc gac aag ccc ggc aag ggc tcc ttc tgg acc ctg cac cct 902
Arg Ser Pro Asp Lys Pro Gly Lys Gly Ser Phe Trp Thr Leu His Pro
225 230 235

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Asp Ser Gly Asn Met Phe Glu Asn Gly Cys Tyr Leu Arg Arg Gln Lys
240 245 250

cgc ttc aag tgc gag aag cag ctg gcg ctg aag gag gcc gca ggc gcc 998
Arg Phe Lys Cys Glu Lys Gln Leu Ala Leu Lys Glu Ala Ala Gly Ala
255 260 265

gcc ggc agc ggc aag aag gcg gcc gcc gga gcc cag gcc tca cag gct 1046
Ala Gly Ser Gly Lys Lys Ala Ala Ala Gly Ala Gln Ala Ser Gln Ala
270 275 280 285

caa ctc ggg gag gcc gcc ggg ccg gcc tcc gag act ccg gcg ggc acc 1094
Gln Leu Gly Glu Ala Ala Gly Pro Ala Ser Glu Thr Pro Ala Gly Thr

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 gag tcg cct cac tcg agc gcc tcc ccg tgc cag gag cac aag cga ggg 1142
 Glu Ser Pro His Ser Ser Ala Ser Pro Cys Gln Glu His Lys Arg Gly
 305 310 315
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 Gly Leu Gly Glu Leu Lys Gly Thr Pro Ala Ala Ala Leu Ser Pro Pro
 320 325 330
 gag ccg gcg ccc tct ccc ggg cag cag cag cag gcc gcg gcc cac ctg 1238
 Glu Pro Ala Pro Ser Pro Gly Gln Gln Gln Ala Ala Ala His Leu
 335 340 345
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 350 355 360 365
 ccg gaa cac cac tac gcc ttc aac cac ccg ttc tcc atc aac aac ctc 1334
 Pro Glu His His Tyr Ala Phe Asn His Pro Phe Ser Ile Asn Asn Leu
 370 375 380
 atg tcc tcg gag cag cag cac cac cac agc cac cac cac cca ccc 1382
 Met Ser Ser Glu Gln Gln His His His Ser His His His His Gln Pro
 385 390 395
 cac aaa atg gac ctc aag gcc tac gaa cag gtg atg cac tac ccc ggc 1430
 His Lys Met Asp Leu Lys Ala Tyr Glu Gln Val Met His Tyr Pro Gly
 400 405 410
 tac ggt tcc ccc atg cct ggc agc ttg gcc atg ggc ccg gtc acg aac 1478
 Tyr Gly Ser Pro Met Pro Gly Ser Leu Ala Met Gly Pro Val Thr Asn
 415 420 425
 aaa acg ggc ctg gac gcc tcg ccc ctg gcc gca gat acc tcc tac tac 1526
 Lys Thr Gly Leu Asp Ala Ser Pro Leu Ala Ala Asp Thr Ser Tyr Tyr
 430 435 440 445
 cag ggg gtg tac tcc ccg ccc att atg aac tcc tct taa gaagacgacg 1575
 Gln Gly Val Tyr Ser Arg Pro Ile Met Asn Ser Ser *
 450 455

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 aaccagaggg ttgtactatt gttaaaaaac aggaaaaaaa ataatgtaag ggtctgtgt 2055
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aaaaaaaaagt tatgtcataa aaatataaaa cgggtgctgtg actcacctgc tcttagccgc 180
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taagggtccag ggggtggtga gcaccttag gagggaactc ggggtcattc agcgagcacg 480
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<213> Mus musculus

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tcatgccaga ggcaaatcgc tgctcccggt gtattggctg cagctaaacg ggtctctcca 960

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1001

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ggcccgactt ggttcgcct gccctatcac acagacatct gctctcagtt tcttctctt 180
tgtgtgcgt acagatgaca aggggagagg agcggaccga ggcggaacaa aaaaaaaag 240
ttatgtcata aagatataaa ccggtgctgt gactcacctg ctcttagccg caggtagcag 300
ttcgtggca gcgcctccg tctgtagcc cggggcccg gtcggcctaa cgtcacttgg 360
ctcggctgac tcagatgacc cggtttctag tgacgaagca aaagtggggc ttttccctt 420
tttagtctg aagctctcag gaggaagaa aaaaaaaagt ctgtatttc cagtctccg 480
gggtgaact ttgggtcagg aatcaggagg gaggaagcaa agagcaggag gggcgcgaga 540
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